

REMARKS**I. General**

Claims 1 and 3-37 are pending in the present application. Applicant notes with appreciation that claims 34-37 stand allowed. Applicant further notes with appreciation that the Examiner has indicated that claims 5-7, 11-14, 24, and 25 include allowable subject matter and would stand allowed if amended to appear in independent form.

Claims 1-4, 8-10, 15-23, and 26-33 stand rejected under 35 U.S.C. § 103. Applicant respectfully traverses the rejections of record.

II. The 35 U.S.C. § 103 Rejections

Claims 1-4, 8-10, 15, 16, 20-23, and 26-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter *AAPA*) in view of Shalom et al., United States patent number 6,493,410 (hereinafter *Shalom*), and further in view of Tomasz, United States patent number 6,400,416 (hereinafter *Tomasz*). Claims 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of *Tomasz* and further in view of Durec et al., United States patent number 6,137,995 (hereinafter *Durec*).

To establish a *prima facie* case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Applicant respectfully asserts that the foregoing requirements are not met by the rejections of record.

Applicant believes the arguments submitted in the Response dated May 5, 2004 to be dispositive with respect to the patentability of the present claims over the art of record. However, for the sake of brevity, those arguments have not been repeated in their entirety herein. Accordingly, those arguments are incorporated herein by reference. The Examiner is requested to consider the arguments set forth in the Response dated May 5, 2004 in

combination with the arguments set forth herein when reconsidering the rejections of the present claims.

A. The Rejections Based Upon The *AAPA*, *Shalom*, and *Tomasz*

Independent claims 1, 15, and 30 recite a first and second single sideband mixer. The Examiner concedes that the *AAPA* does not teach the use of a single sideband mixer, but opines that because *Shalom* discloses use of a single sideband mixer that it would have been obvious to substitute a single sideband mixer of *Shalom* for the mixers of the *AAPA*, see the Office Action at page 3. However, the foregoing is fundamentally flawed with respect to properly establishing obviousness under 35 U.S.C. § 103 for a number of reasons.

Applicant respectfully asserts that, assuming *arguendo* that one of ordinary skill in the art were to modify the dual conversion tuner circuit of the *AAPA* in view of *Shalom*, the invention of claims 1, 15, and 30 would not result. *Shalom* teaches only one mixer being replaced with a single sideband mixer, see e.g., column 2, lines 44-49. There is nothing in *Shalom* to teach or suggest that all mixers in all portions of a circuit may be replaced with a single sideband mixer. Accordingly, if one of ordinary skill in the art were to modify the *AAPA* in view of *Shalom*, a first and second single sideband mixer would not be provided in the resulting circuit.

Moreover, Applicant points out that there is nothing in the disclosure of *Shalom* to teach or suggest the use of a single sideband mixer in a tuner circuit because *Shalom* does not teach the use of a single sideband mixer in a tuner circuit whatsoever. *Shalom* instead teaches the use of a single sideband mixer in a frequency synthesizer circuit, see e.g., column 1, lines 14-15. Even assuming, *arguendo*, that *Shalom* would suggest to one of ordinary skill in the art that a single sideband mixer may be substituted for a mixer in a frequency synthesizer circuit, there is nothing to have suggested that such a substitution would be suitable for a tuner circuit, wherein an input signal, such as a video bandwidth signal, is frequency translated to a desired frequency. For example, there is no reasonable expectation of success with respect to substitution of the single sideband mixer of *Shalom* into a tuner circuit from the disclosure of the use of a single sideband mixer in a frequency synthesizer circuit in *Shalom*. Consistent with the foregoing, *Shalom* expressly states that replacing a mixer of a frequency synthesizer circuit with a single sideband mixer was believed to be

innovative, suggesting that such a replacement is not intuitive or simplistic, see column 2, lines 10-12.

The rejection of record merely establishes that *Shalom* shows an instance of a single sideband mixer being substituted for a mixer and therefore the mixers of the *AAPA* might have been replaced with single sideband mixers. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination, M.P.E.P. § 2143.01 (citing *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990)).

The motivation provided in the Office Action for modifying the *AAPA* in view of *Shalom* is that such a modification would “provide a lower inherent noise output and remove unwanted image signal,” the Office Action at page 3. Applicant respectfully points out that the *AAPA* expressly states that the elements of the *AAPA* circuit “are provided by discrete components in order to accommodate the desired frequency ranges and power levels, as well as to provide an output signal of a desired quality,” page 9, lines 22-24. Accordingly, the discrete components of the *AAPA* are stated to meet the desired system requirements, see page 2, line 24, through page 3, line 1.

“A person of ordinary skill in the art is also presumed to be one who thinks along the line of conventional wisdom in the art and is not one who undertakes to innovate, whether by patient, and often expensive, systematic research or by extraordinary insights,” *Standard Oil Co. v. American Cyanamid Co.*, 227 U.S.P.Q. 293, 298 (Fed. Cir. 1985). Such a person would not have undertaken to substitute a mixer of the *AAPA* with the single sideband mixer of *Shalom* because the circuit of the *AAPA* already meets the system requirements. Moreover, the use of a single sideband mixer, particularly when implemented in discrete components, adds complexity to the circuit. Accordingly, one of ordinary skill in the art would not have been led to modify the *AAPA* to replace the mixers therein with a single sideband mixer of *Shalom* from a review of the art of record.

The Office Action further concedes that the *AAPA* does not teach that the mixers are disposed on a common integrated circuit substrate, see the Office Action at page 3. Accordingly, the rejection of record relies upon *Tomasz* as teaching mixers disposed on a

common integrated circuit substrate. The motivation of record for modifying the *AAPA* in view of *Tomasz* is stated as “it would have been obvious to one of ordinary skill in the art to have both mixers disposed on a single IC substrated, as disclosed in *Tomasz*, to the modified system of Applicant’s Admitted Prior Art to save space & cost,” the Office Action at page 3.

It is well settled that the prior art must suggest the desirability of the claimed invention, M.P.E.P. § 2143.01. However, the motivation supplied in the Office Action is derived from the Applicant's disclosure, see page 17, lines 7-17. The teaching or suggestion to make the claimed combination must be found in the prior art, not in Applicants' disclosure. See M.P.E.P. §2143 (citing *In re Vaeck*, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991)). Thus, the motivation to combine provided by the Examiner is improper, as the motivation must be described in a prior art reference and must detail the benefits of such a modification.

Claims 2-4, 8-10, 16, 20-23, 26-29, and 31-33 depend directly or indirectly from their respective base claims 1, 15, and 30, and thereby inherit all of the respective limitations. Accordingly, it is respectfully submitted that these dependent claims are allowable at least for the reasons set forth above. Moreover, the rejections of record fail to properly establish a *prima facie* case of obviousness under 35 U.S.C. § 103 with respect to these claims.

Initially, Applicant points out that the rejections of record with respect to independent claims rely upon the *AAPA* in view of *Shalom* in further view of *Tomasz*. However, the rejections of record with respect to the dependent claims rely only upon the *AAPA* in view of *Tomasz*. As the dependent claims inherit the limitations of the base claims from which they depend, the rejections of record fail to address the single sideband mixer limitations set forth therein, and which are conceded by the Examiner not to be present in the *AAPA*.

In rejecting claims 8-10 and 23, the Office Action states that the modified system of the *AAPA* and *Tomasz* disclose a signal amplitude manipulator disposed on a common integrated circuit substrate, see the Office Action at page 3. However, this statement does not provide any statement as to why one of ordinary skill in the art would have been led to modify the discrete component system of the *AAPA* to include a signal amplitude manipulator disposed on a common integrated circuit substrate, as required by M.P.E.P. § 706.02(j).

Moreover, assuming *arguendo* that *Tomasz* discloses an integrated circuit amplifier, there is nothing in the art of record to teach or suggest that such an amplifier may be substituted in the circuit of the *AAPA* with any reasonable expectation of success. Additionally, the amplifiers relied upon in the rejection (*Tomasz* Figure 3, numbers 252 and 256) do not appear to be taught to be disposed on the same integrated circuit substrate.

In rejecting claim 20, the Office Action states that the modified system of the *AAPA* and *Tomasz* disclose an amplifier, coupled to the input, which is disposed on a common integrated circuit substrate, see the Office Action at page 4. However, claim 20 requires a first single sideband mixer, a second single sideband mixer, and an amplifier all to be disposed on a common integrated circuit substrate. The amplifier relied upon in the rejection (*Tomasz* Figure 3, number 224) is not disposed upon a same integrated circuit substrate with a first and second mixer (in addition to the mixers not being single sideband mixers).

The rejection of record with respect to claims 21-22 relies upon the *AAPA* as teaching an amplifier, coupled between the first and second mixers, disposed on a common integrated circuit substrate, see the Office Action at page 4. However, the *AAPA* expressly discloses discrete components wherein such mixers and amplifier are not disposed on a same integrated circuit substrate.

The rejection of record with respect to claim 31 relies upon the *AAPA* as teaching a filter relying upon the first single sideband mixer for image rejection, see the Office Action at page 4. However, the Examiner concedes that the *AAPA* does not disclose a single sideband mixer, see the Office Action at page 3. Clearly, the rejection of record with respect to claim 31 is improper.

The rejection of record with respect to claim 33 relies upon the *AAPA* as teaching an amplifier having linearity characteristics insufficient to provide head end quality signal characteristics when tones associated with an undesired image signal are present with tones of a signal to be amplified, see the Office Action at pages 4-5. However, the *AAPA* teaches the opposite of the foregoing, stating that in order to provide the desired linearity the amplifier consumes more power, see page 11, lines 5-7.

B. The Rejections Based Upon The *AAPA*, *Tomasz*, and *Durec*

Claims 17-19 depend directly or indirectly from claim 15, and thereby inherit all of the limitations therein. Applicant has shown how claim 15 is patentable over the rejection of record, and *Durec* is not relied upon in curing any of the deficiencies identified by Applicant. Accordingly, it is respectfully submitted that these dependent claims are allowable at least for the reasons set forth above. Moreover, the rejections of record fail to properly establish a *prima facie* case of obviousness under 35 U.S.C. § 103 with respect to these claims.

Applicant points out that the rejections of record with respect to independent claim 15 relies upon the *AAPA* in view of *Shalom* in further view of *Tomasz*. However, the rejections of record with respect to dependent claims 17-19 rely only upon the *AAPA* in view of *Tomasz* in further view of *Durec*. As the dependent claims inherit the limitations of the base claims from which they depend, the rejections of record fail to address the single sideband mixer limitations set forth therein, and which are conceded by the Examiner not to be present in the *AAPA*.

Moreover, claim 17 recites “a phase shifter . . . to split a signal provided thereto and to provide a predetermined phase differential between each split signal.” The rejection of record relies upon *Durec* to meet the foregoing. However, a review of *Durec* reveals that a split signal is provided to the phase shifter therein (see Figure 1) and thus the phase shifter does not split a signal provided thereto.

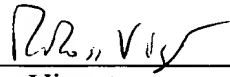
III. Summary

In view of the above, Applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2380, under Order No. 49581/P024US/10006096 from which the undersigned is authorized to draw.

Dated: November 3, 2004

Respectfully submitted,

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